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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
RYMAN, DANIEL J	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/577,814	ROBERTS ET AL.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,19-24,31-36 and 38-41* is/are rejected.

7)☒ Claim(s) *6-18,25-30, and 37* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-41 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 24 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 24 discloses that n = 1. Claim 23, which claim 24 depends upon, discloses that n >= 1. Thus, claim 24 fails to limit claim 23. In addition, claim 24 is vague and indefinite since a broad range or limitation (n >= 1) together with a narrow range or limitation that falls within the broad range or limitation (n = 1) is considered indefinite.

3. Claim 28 is objected to because of the following informalities: claim 28 should depend upon claim 27 and not claim 21. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 19-21, 31, 33, 34, and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Slater et al. (USPN 6,731,656).

6. Regarding claim 1, Slater discloses a method of transporting an input signal (broadband signal) through a hyper-concatenated connection between a start node and an end node in a network, the input signal having a variable user-selected concatenation (various types of signals) (Fig. 3 and col. 3, lines 1-13), the method comprising steps of: a) receiving the input signal at the start node and splitting the input signal into a plurality of derived signals independently of the concatenation of the input data signal (Fig. 3; col. 3, lines 23-27; and col. 3, lines 47-51); b) transmitting the derived signals as hyper-concatenated data streams within respective ones of a plurality of independent channels (Fig. 7; col. 3, lines 55-58; and col. 4, lines 23-35), at least one of the hyper-concatenated data streams being routed through a pointer processing state machine that is independent of a pointer processing state machine through which another one of the hyper-concatenated data streams is routed (Fig. 4; col. 2, lines 2-4; col. 2, lines 54-57; col. 3, lines 13-19; and col. 4, line 58-col. 5, line 2) where each data stream is transmitted independently such that each is subject to a different delay; and c) recombining the derived signals at the end node to form an output signal equivalent to the input signal (col. 5, lines 13-32).

7. Regarding claim 2, referring to claim 1, Slater discloses that the output signal is output from the end node at a signal phase that is arbitrarily related to a signal phase of the derived signals (col. 5, lines 26-32).

8. Regarding claim 3, referring to claim 1, Slater discloses that the independent channels in the hyper-concatenated connection meet predetermined criteria, comprising: a) each of the channels is processed by adjacent pointer processors in the start node and the end node (Figs. 3 and 4; col. 3, lines 55-58; and col. 4, line 58-col. 5, line 2) where, as broadly defined, the pointer processors are "adjacent" since the pointer processors process "adjacent" channels; b) channel

order is identical at the start node and the end node (Fig. 2; col. 4, lines 18-22; col. 4, lines 58-62; and col. 5, lines 13-18) where LSI is used to ensure proper channel order; and c) a maximum latency between the derived signals received at the end node on channels of the hyper-concatenated connection is less than a predetermined time interval (col. 5, lines 21-23).

9. Regarding claim 19, Slater discloses a network node adapted to function as a start node for a hyper-concatenated connection across a network between the start node and an end node, the hyper-concatenated connection being routed through at least one independent pointer processing state machine, the network node comprising: a) an input port adapted to receive an input signal having a user-selected variable concatenation (Fig. 3; col. 3, lines 23-27; and col. 3, lines 47-51); b) a signal processor adapted to split the input signal across a plurality of derived signals independently of the concatenation of the input signal (Fig. 3; col. 3, lines 23-27; and col. 3, lines 47-51); and c) an output port adapted to launch the derived signals across the network as hyper-concatenated data streams within respective ones a plurality of channels of the hyper-concatenated connection (Fig. 7; col. 3, lines 55-58; and col. 4, lines 23-35).

10. Regarding claim 20, referring to claim 19, Slater discloses that each hyper-concatenated channel has a signal bandwidth expressed as an integer M (where M>=I) of frames of the derived signal to be transmitted over each respective channel (col. 3, lines 55-67 and col. 4, lines 36-43).

11. Regarding claim 21, referring to claim 20, Slater discloses that M is selected from a group consisting of: 1, 2, or an integer multiple of 3 (col. 3, lines 55-67 and col. 4, lines 36-43).

12. Regarding claim 31, Slater discloses network node adapted to function as an end node for a hyper-concatenated connection between a start node and the end node, the hyper-concatenated connection being routed through independent pointer processing state machines, the network

node comprising: a) an input port adapted to receive hyper-concatenated data streams from adjacent channels, independently of a concatenation of each hyper-concatenated data stream (Fig. 7; col. 3, lines 55-58; and col. 4, lines 23-35; and col. 4, line 56-col. 5, line 2); b) a signal processor adapted to combine the hyper-concatenated data streams into an output signal having a user-selected concatenation (col. 5, lines 13-32); and c) an output port adapted to transmit the output signal to a downstream node (col. 5, lines 13-32).

13. Regarding claim 33, referring to claim 31, Slater discloses a network node as claimed in claim 31, wherein the signal processor comprises, in respect of each hyper-concatenated data stream: a) an alignment buffer (data store) adapted to buffer payload data of a respective hyper-concatenated data stream (col. 4, line 56-col. 5, line 32, esp. col. 5, lines 13-21); b) a pointer processor adapted to detect a frame received in a respective data stream and determine a location of payload data in the frame (col. 4, line 56-col. 5, line 2); c) a read controller responsive to the pointer processor and adapted to read the buffered payload data in an aligned condition across the channels of the hyper-concatenated connection into the concatenated output signal (col. 4, line 56-col. 5, line 32).

14. Regarding claim 34, referring to claim 33, Slater discloses that the pointer processor further comprises: a) a signal monitor adapted to monitor at least an overhead portion of the respective frames (col. 4, line 56-col. 5, line 2); and b) means for determining whether the overhead portion contains a split indicator (FNUM and LSI values) (col. 4, line 56-col. 5, line 7).

15. Regarding claim 38, referring to claim 33, Slater discloses that the alignment buffer has a predetermined storage capacity based on an anticipated maximum difference between

propagation times of the respective signals received on each hyper-concatenated data stream (col. 5, lines 18-21).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 4 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slater et al. (USPN 6,731,656).

18. Regarding claim 4, referring to claim 3, Slater does not expressly disclose that the predetermined time interval is less than a time period required to receive a frame from one of the derived signals at the end node; however, Slater does disclose that the predetermined time interval is less than a time period required to receive (FNUMMAX/2) frames from a one of the derived signals at the end node (col. 5, lines 21-23). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Sine Slater discloses having a predetermined time interval, it would have been obvious to one of ordinary skill in the

art at the time of the invention to use any time interval, including one frame, absent a showing of criticality by Applicant.

19. Regarding claim 39, referring to claim 38, Slater does not expressly disclose that the predetermined storage capacity of the alignment buffer is adequate to store frame data received in a time interval equivalent to twice the anticipated maximum difference in propagation delay of the respective hyper-concatenated data streams; however, Slater does disclose that the buffer is adequate to store frame data received in a time interval (col. 5, lines 18-21). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Sine Slater discloses having a buffer capable of storing frame data received in a predetermined time interval, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the interval comprise any time interval, including twice the anticipated maximum difference in propagation delay of the respective hyper-concatenated data streams, absent a showing of criticality by Applicant.

20. Regarding claim 40, referring to claim 38, Slater does not expressly disclose that the anticipated maximum difference in propagation delay between the respective hyper-concatenated data steams is less than a time interval required to receive a frame at the end node on any one of

the hyper concatenated data streams; however, Slater does disclose a maximum difference in propagation delay (col. 5, lines 18-21). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Sine Slater discloses a maximum difference in propagation delay, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the maximum difference be any length, including less than a time interval required to receive a frame at the end node on any one of the hyper concatenated data streams, absent a showing of criticality by Applicant.

21. Regarding claim 41, referring to claim 38, Slater does not expressly disclose that the predetermined storage capacity is adequate to store frame data received during a period of 250 uSec; however, Slater does disclose a predetermined storage capacity (col. 5, lines 18-21). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re

Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Sine Slater discloses a predetermined storage capacity, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the storage capacity be any length, including capacity adequate to store frame data received during a period of 250 uSec, absent a showing of criticality by Applicant.

22. Claims 5, 22-24, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slater et al. (USPN 6,731,656) as applied to claim 3 above, and further in view of Yoshifuji (USPN 5,537,405).

23. Regarding claims 5, 22, and 32, referring to claims 1, 19, and 31, Slater does not expressly disclose that the input signal and output signal comprises a user-selected mix of concatenated and unconcatenated Synchronous Optical Network (SONET)/Synchronous Digital Hierarchy (SDH) signals; however, Slater does disclose that the input signal can be any broadband data signal (col. 1, lines 60-col. 2, line 4 and col. 2, lines 43-53) and that multiple input signals can be combined in an arbitrary mix (Fig. 2; col. 3, lines 1-19; and 40-51). Yoshifuji teaches, in a data transport system, that optical signals support high data rates (broadband) in a concatenated or unconcatenated form (col. 1, lines 56-67). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the input signal and output signal comprise a user-selected mix of concatenated and unconcatenated Synchronous Optical Network (SONET)/Synchronous Digital Hierarchy (SDH) signals since SONET/SDH signals are broadband data signals.

24. Regarding claims 23 and 24, referring to claim 22, Slater in view of Yoshifuji discloses that each frame is an STS-n where n is an integer, and n >= 1 (Yoshifuji: col. 1, lines 56-67).

25. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slater et al. (USPN 6,731,656) as applied to claim 33 above, and further in view of Parruck et al. (USPN 5,257,261).

26. Regarding claim 35, referring to claim 33, Slater does not expressly disclose a control means adapted to: a) designate one of the hyper-concatenated data steams as a reference data stream; and b) designate all others of the hyper-concatenated data steams as slave data streams. Parruck teaches, in a system for combining a plurality of data streams, a) designating a data steam in the low rate connection as a reference data stream (master) (Fig. 1b and col. 3, lines 42-68); b) designating all other data steams of the data connection as slaves to the reference data stream (Fig. 1b and col. 3, lines 42-68) in order to provide a means for combining any number of signals (col. 3, lines 15-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to a) designate a data steam in the hyper-concatenated connection as a reference data stream; b) designate all other data steams of the hyper-concatenated connection as slaves to the reference data stream in order to provide a means for combining any number of signals.

27. Regarding claim 36, referring to claim 35, Slater in view of Parruck discloses that a reference read controller is adapted to control a reference read operation for reading payload data of the reference data stream from a respective reference alignment buffer so that payload data from each of the slave data streams can be read by respective slave read operations in alignment with the reference data stream (Parruck: Fig. 1b; col. 3, lines 49-54; col. 8, lines 45-68; and col. 13, lines 23-54).

Allowable Subject Matter

28. Claims 6-18, 25-30, and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest that the splitter and receiver locate and manipulate a payload pointer and a concatenation indicator since the prior art splits the incoming information on a byte basis (Slater: col. 3, lines 47-51).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 7:00-4:30 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DJR

Daniel J. Ryman
Examiner
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